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VOLUME XXXIX MARCH, 1940 NUMBER 3

THE RUPUNUNI SAVANNAHS OF BRITISH GUIANA

EARL B. SHAW
State Teachers College, Worcester, Massachusetts

Not long since Chicago papers carried a news item the gist of which follows: "The Sewell Avery zoological expedition headed by Assistant Curator E. R. Blake of the Field Museum, Chicago, nearly came to grief in returning from several weeks active field work in British Guiana near the Brazilian border. The main boat was lost together with nearly half the specimens which had been collected at great effort and care. Moreover, the leader of the party and several of his native helpers were extremely fortunate to escape with their lives. A detailed account of this ill-fated expedition may be found in the *Field Museum News* for February 1939."

At about the same time that the above news item appeared, the headlines of metropolitan papers featured the problems of the German-Jewish refugees and told of plans for a homeland far away from the so-called Aryan country which has frowned on Semitic activities ever since the inauguration of the Hitler regime. One of the places suggested as a colonizing region for a portion of Germany's Jews is the Rupununi Savannahs of British Guiana which lie far inland close to the Brazilian boundary.

On first glance the average reader may not see a close connection between these interesting news items, but the discerning student will reason that a distinct relationship does exist—a relationship in transportation. To get to the Rupununi Savannahs, the Jews must travel by the same routes and the same means of transport that brought disaster to the scientific expedition. The road to the Brazilian border was not an easy one for the E. R. Blake party; it will not be an easy one for the refugees. And once at Rupununi they will face numerous additional obstacles. It is the purpose of this study to analyze these handicaps, together with other phases of Rupununi geography, in relation to the suggested colonization by Jewish refugees.

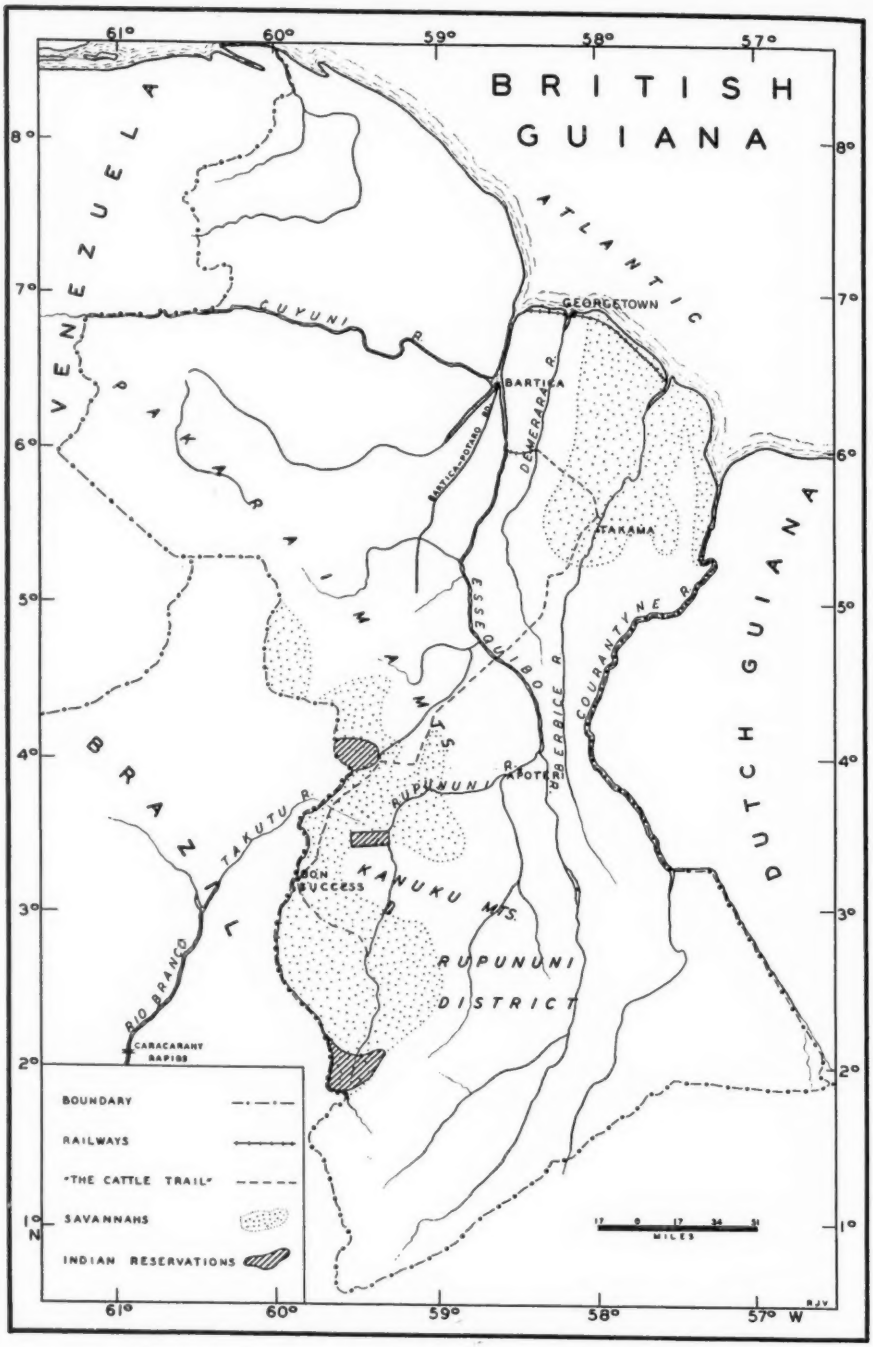

Fig. 1. Place map of British Guiana (Data from Jewish Refugee Report).

BRITISH GUIANA—GENERAL SURVEY

British Guiana, the largest of the three European colonies in South America lies along the northeastern coast between 1° and 9° North Latitude, and 57° and 61° West Longitude (Fig. 1). Bounded by the Atlantic on the north, Dutch Guiana or Surinam on the east, Brazil on the south and Venezuela on the west, it includes an area of approximately 90,000 square miles, almost nine-tenths of which is covered with forest. Encouraging this forest growth is a climate ranging from wet equatorial to tropical wet and dry. A very general sub-division of the country might separate it into four major regions lying approximately parallel to the coast in their alignment. The first, the coastal alluvial belt, supports nearly the entire 337,039 people (1937 estimate) who live in this sparsely populated land. Lying behind this region, which is devoted largely to sugar and rice fields, appears a sand hill zone made up of forested dunes and hills. Just beyond lies a third region, a forest-covered mountainous area which gives way to tropical savannah country along the Brazilian border in the southwest. This border region has been named the Rupununi Savannahs after a stream of the same name whose course follows much of the north-south extent of the grass lands before emptying into the Essequibo.

HISTORICAL DEVELOPMENT[1]

The first permanent European settlement in British Guiana was made by the Dutch who drained the low-lying coastal areas for plantations of sugar, cotton and cacao. Laborers for this tropical agriculture came not only from Africa but also from the local colony where aboriginal Indians were captured in slave hunts. As the supply from the nearby forests became exhausted, expeditions advanced farther into the interior and led the way for the exploration of the entire country. Military posts were established at strategic points as advances were made. One of these points lay at the confluence of the Rupununi and the Essequibo rivers. It was from this camp that slave hunters seeking native workers for the coastal sugar lands first entered the grass lands of southern British Guiana, savannahs which form an offshoot of the larger Rio Branco Llanos to the south in Brazil.

[1] Much of the information contained in this section is based upon "A Short History of the Rupununi Savannahs," H. E. Turner, *Agricultural Journal of British Guiana*, Vol. 9, No. 4, 1938, pp. 230-236.

At the same time that the Dutch were moving southward into what is now British Guiana, Portuguese slave traders were moving west and north along the Amazon and its tributary the Rio Branco; here they discovered the Rio Branco grazing country. Indians then occupied the savannahs, but fear of the raiders encouraged an exodus to the mountains—to an environment not so favorable for the native hunting, fishing and gathering economy which they had followed on the plains, but one which gave the inaccessibility that they sought.

Coincident with the slave raids, settlement of a type took place in the Rio Branco region. The Portuguese used these llanos as a dumping ground for criminals under long sentence of imprisonment. To assist these deported prisoners the government sent up small herds of cattle, descendants of which now roam the Rio Branco and Rupununi grass lands.

After slave raiding was outlawed, the Indians left the mountains for the plains and mingled with the Portuguese settlers. Here they may be found today, some working for the Europeans, but many practising a milpa agriculture supplemented by hunting and fishing.

European settlement similar to that which took place in the Rio Branco region did not take place in the Rupununi. But just as in the former area, the Indians returned to the grass lands as soon as raids ceased. Even as late as the middle of the nineteenth century they were in sole possession of the Rupununi, with apparently little or no external influence affecting their mode of life or economic outlook. A few white men toured the savannahs from time to time in search of minerals or in pursuit of scientific exploration, but the long slow and costly transport presented too many difficulties to encourage permanent white settlement there. Not until the decade of the eighties did ranching develop, far later than in the Rio Branco, and then it was carried on by extremely careless methods. Cattle roamed the range with little attention except for an annual branding, round-up and counting. Such methods, together with the uncontrolled breeding they encouraged, permitted quality to degenerate rapidly.

The increased demand for meat brought on by the World War encouraged some improvement in methods and an increase in production, but no significant progress was evident. One result of the boom, however, was the formation of a corporation known as the Rupununi Development Company, which is the main factor in the grazing industry at the present time. Employees of this company

and the owners and workers on a few smaller holdings represent the only white element in the population of the Rupununi, a population which even with the Indians averages much less than one person per square mile.

Only slight changes have taken place in the landscape of this isolated region since the white man discovered it. At that time Indians roamed the plains killing native fauna which supplied the meat diet for their economy. European slave hunters brought about depopulation for a time, but with the outlawing of their predatory habits the Indians returned. Recently, Whites have entered the region to exploit the native vegetation for grazing, an extensive type of industry. At present a denser settlement has been suggested thru planned colonization by German-Jewish refugees. An examination of the physical environment may indicate the chances for the success of the new venture.

THE PHYSICAL LANDSCAPE[2]

The Rupununi Savannahs, which lie south of the Pakaraima Mountains and west of the British Guiana rain forest, are merely a corner of the great llanos which comprise large areas of Venezuela, Colombia and Brazil. The total area of this corner has been variously estimated at from 10,000 to 40,000 square miles. The former figure no doubt is approximately correct—certainly so if one can believe the oft-repeated statement that nine-tenths of the 90,000 square miles comprising British Guiana is forest covered.

This ten thousand-square mile grazing ground is divided into two sections by the Kanuku Mountains which cross it in a general east-west direction. The northern portion is said to be the smaller portion and has two mountain boundaries; the Kanukus rise to heights between two and three thousand feet on the south, while the well known peak of Mt. Roraima, reaching nearly nine thousand feet, near the Venezuelan border lies among the Pakaraima that isolate the Rupununi on the north. A water boundary, the Takutu River, forms the western limit, and a rain forest stretches all along the eastern extremities. The southern section, lying equatorward from the Kanukus, is also shut off on the east and south by outliers from the Kanukus together with heavy rain forest. To the west flows the Takutu River.

Topography divides the grass lands in another way. From the air these plains, which lie approximately four hundred feet above

[2] Altho the author visited British Guiana in 1938 he did not reach the Rupununi Savannahs. Consequently much of the information is based upon "British Guiana Refugee Commission Report, Appendices," H. M. Stationery Office, London, 1939.

sea level, appear almost flat; but close examination discloses a slightly undulating terrain with high sandy sections, low gravelly ridges and a series of shallow depressions. These depressions become lagoon-like during the rainy season. Estimates place the areas subject to flood as high as fifty per cent altho it must be remembered that in many sections flooding lasts for only three or four days at a time.

Again the Rupununi region falls into two major divisions when classified according to soils. The first type, the sandy soil of the ridges and low hills, has been described as barren and sterile and characterized by sparse grass with little or no feed value. The second type, found along the sides of the creeks and in the dry lagoon beds, contains some clay and humus and is superior to the sands of the non-inundated lands. During the dry season practically all cattle are found grazing on these lower lying soils. In fact it is commonly stated that cattle are at their best in the dry season when they can graze on the comparatively rich grasses of the lowlands. In the rainy season when they are driven above the flood levels, with only subsistence pasture available, they lose flesh. At that time they are forced by hunger to eat the hairy grass (Trachypogon plumosa), the tussocky black stem (Scirpus paradoxus Boeck), and other poor grasses of the sandy soil region. The grass is lacking in nutritive value and some of it is coarse and sharp enough to injure the mouths of the cattle. They graze this region with a little more relish when new shoots spring up soft and green after the area has been burned over.

Adding to the handicaps already mentioned, several species of poisonous plants are found on the non-inundated lands, and huge ant-hills five and six feet high minimize the grazing value over extensive sand pastures. Available phosphate as well as lime is almost entirely lacking on these soils. Indeed, one of the most striking features of the colony as a whole is the entire absence of limestone deposits.

Taken on the average thruout the whole Rupununi region, poor soil and good soil areas together, it is likely that the carrying capacity of the vegetation is not more than one steer for thirty acres and this may be an optimistic estimate. When one thinks of the Corn Belt Region of the United States, large portions of which will support one steer on one and a half or two acres, these tropical savannahs stand far down in the scale of potential grazing lands in carrying capacity. In fact they compare more closely with the

arid intermontane region of Western United States or the bleak tundras of Northern Canada and Alaska.

In any discussion of Rupununi soils attention should be called to the Kanuku Mountain valley lands which border the savannahs and open out on them. Several of these forested valleys have been explored and some show red and chocolate colored soils of considerable fertility developed from granite and diorite. They are not being used at present altho it is thought they were once occupied by the Indians when slave raids drove them into the mountains. Later the valley soils were abandoned when the aborigines came out on the plains where fish and game were more abundant and where fewer "kabouri" flies and mosquitoes are found.

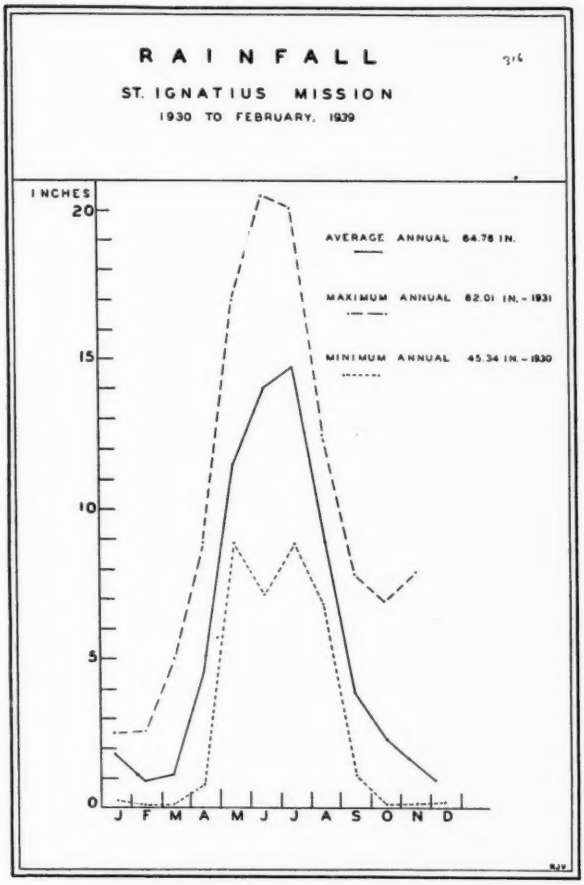

Fig. 2. Rainfall chart for St. Ignatius (Data from Jewish Refugee Report).

The climate of the savannahs is a low latitude wet and dry type, with the maximum rainfall occurring in the period between May and August and the minimum falling during the time from September to April. The small amount in the dry season shows adjustments to the trade winds which blow consistently at that time—from the northeast in the northern section and from the east-northeast in the equatorward portion. During the wet season the solar control becomes more important and heavy convectional showers result.

The distribution of rainfall with its definite seasonal character is doubtless the most important single factor accounting for the savannah vegetation. Certainly the chart for St. Ignatius (Fig. 2) gives striking evidence of such influence. It must be remembered, however, that in such an isolated sparsely peopled region, climatic statistics are few and no comprehensive figures are available.

At the edges of the savannah where moisture distribution is less seasonal, the forest alternately presses and releases its claims. These claims seem greatly influenced, according to some authorities, by the cyclic character of the rainfall and the great ranges in precipitation from year to year. Moreover, grass fires limit the forest invasion by killing young trees of the rain forest type at the forested fringe of the savannah. In addition the constantly high temperatures and consistently blowing trade winds of the dry season also discourage forest growth thru their influence on high rates of evaporation.

For man the heat is not unbearable in the dry season because the steady breeze and comparatively low relative humidity lower the sensible temperatures. In the rainy season, however, sensible temperatures are high and the hot sultry air of both day and night makes conditions decidedly unpleasant for man and livestock.

Closely associated with high temperatures, tropical rains and seasonal floods are the myriads of mosquitoes. Most of these are said to belong to the malarial genus anopheles altho Aedes aegypti, carrier of yellow fever, is also present. No deaths have been reported from the latter since 1909, but an excellent mechanism exists for rapid transmission of the disease once it is present. Curiously enough it is said that the anopheles do not enter the houses on the savannahs if the grass and low vegetation are cleared for a radius of even a few feet from the buildings. These malaria carriers appear to have an aversion to leaving the shelter of the taller grass on the uncut llanos.

Just as location vitally influences the climate of the Rupununi, so does it show definite relationships to transportation. The village of Dadanawa, in the heart of the savannahs just south of the Kanukus, is only 293 air-line miles from Georgetown on the coast; but between the coast and the llanos the obstacles to transport are legion. The Pakaraima Mountains lie to the north of the Rupununi. They are high and relatively inaccessible; the eastern face consists of an escarpment that at many points rises sharply out of the low river valleys and provides a real barrier for entrance into the northwest portion of the grass lands. Altho the Kanukus, which

separate the northern and southern pastures of the Rupununi, offer difficulties for transportation, the Rupununi River which opens thru them furnishes some sort of an approach. Travel thru tropical forest is not easy and, as previously indicated, nine-tenths of British Guiana is covered with that type of vegetation. The difficulties of river transportation may be recalled from the opening paragraph which described the damage sustained by the Field Museum party. Except in coastal areas the river beds consist of a series of ledges which create frequent cataracts, falls and rapids. Despite these obstructions, the Essequibo, the Demerara, the Berbice and the Courantyne and their tributaries—in short the main streams of British Guiana—constitute almost the only existing transport routes to the interior of the colony.

With care the Essequibo may be navigable for launches as far as Apoteri at the northeast edge of the Rupununi. However, the southern border of the llanos lies a hundred miles away and navigation on headwater streams thru the equatorward section is hazardous for even small boats.

In considering water transport to the grasslands, mention should be made of an approach from the south by the Amazon and its tributary, the Rio Branco. Vessels of five hundred tons can reach the south end of Caracarhy Rapids of the latter stream at practically all seasons of the year. Once around the series of rapids, launches towing small barges could be brought during the rainy season, from May to September, up the Takutu, a tributary of the Rio Branco, to Bon Success on the western border of the Rupununi. Of course the use of this route has political implications, for the consent of the Brazilian government would be necessary.

Not only are rivers difficult to navigate but even the air is not free from hazard. E. R. Blake, leader of the recent Sewell-Avery Expedition to the Brazilian border, writes that in meeting his party in the interior of British Guiana by plane "a tropical thunderstorm was encountered which forced the fliers to descend and for many miles the tiny sea plane skimmed the tree tops. The visibility was extremely bad and at the low altitude we were fortunate to escape a crash."

Thus it may be seen that location of the region in an area characterized by heavy convectional rainfall and in a land beyond mountains, forests and river rapids presents difficult transport problems for man and for the commodities he may produce to supply the outside world.

Advantages and Disadvantages of the Rupununi for Jewish Colonization

The preceding discussion on the geographic background of the Rupununi leaves little doubt that any colonization, whether by Jew or Gentile, will be faced with innumerable problems.

Suggestions have been made that the colonists might continue the grazing industry which characterizes the European exploitation of the region at present. This seems advisable for the sandy soils which abound over much of the area are not only infertile and unsuitable for crop agriculture without fertilization, but will be blown by the wind after plowing. Some writers say that crop farming will bring a veritable dust bowl to the Rupununi.

Fig. 3. Driving a herd to the dipping tanks. The entire Rupununi is within the tick zone and animals are dipped at regular intervals. (Courtesy of H. E. Turner, General Manager, Rupununi Development Co. Ltd.)

Further suggestion has been made that colonists supplement money crops resulting from cattle ranching with subsistence agriculture. If this plan is followed it will be advisable to move their garden plots every two years as the natives do. The Indians have learned that new ground is necessary after two plantings to raise their major crop, cassava, successfully. Some say fertilizers may be obtained from manures out of the corrals. However, ranching of the type practised on the Rupununi requires little use of corrals and the subsistence agriculture of Europeans may well follow the Indian milpa type.

Recent soil research gives some hope for colonists in the southern Rupununi. It may be recalled that the granites and diorites of the Kanuku Mountains have furnished materials for fertile red and chocolate soils in some valleys opening into the llanos. It is not definitely known how extensive these rich soil areas are, but those available will offer possibilities for subsistence agriculture to the pioneers who choose locations on the border of the rain forest.

At such locations, however, they will suffer more from mosquitoes than they will on the plains.

If the plains continue to be exploited for grazing, the number of colonists the region will support following that extensive type of an economy is not large. Moreover the idea that great expansion can take place in cattle raising is not believed by occupants of the area. Mr. H. E. Turner, General Manager of the Rupununi Development Company, has the following to say about the expansion of the grazing industry there. "The idea that the Rupununi district is a rich stock raising area capable of holding hundreds of thousands of head of cattle is a fallacy. Altho certain areas are still capable of holding more cattle, large sections are already heavily overstocked, and this largely accounts for the extremely poor quality of much of the stock. . . . Taken as a whole, the grazing which is of value does not comprise a fifth of the entire area. . . . This may produce some five thousand head of marketable steers per annum together with a proportionate number of spayed heifers."

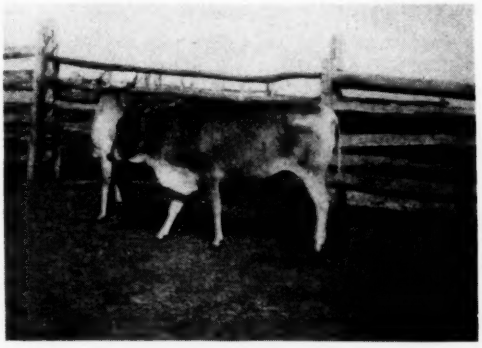

Fig. 4. Crossbred Zebu Hereford Heifer (½ Zebu, ¼ Hereford, ¼ Rupununi). The Zebu cross brings the animal more resistance to adverse tropical conditions while the Hereford blood adds quality to the carcass. (Courtesy of H. E. Turner, General Manager Rupununi Development Co. Ltd.)

In regard to profits in the grazing industry, the type of native grasses, the tick and Texas fever and the difficulties of access to market—all these handicaps suggest limited dividends for ranchers and ranch hands. As an example of the difficulty of marketing, present conditions on the route to the limited Georgetown market may be described. Most of the exports, cattle, leave the region by way of the Rupununi trail leading to Takama, about two hundred miles away on the Berbice River. As a trail the route is, in general, well located, but the only work done on it has been to clear out the underbrush over a width of about twenty feet in wooded sections and to build a very few bridges of a pioneer type. The route lacks suitable stops for pasture feeding and as a result some death loss

is common as well as considerable shrinkage in weight. It costs about $1.50 to move each beast to Takama by trail; another $3.00 is required to ship the animal down the Berbice and across to Georgetown by rail. Once at the coastal city, five year old steers may bring $22.00 on a high market. Two year olds from the Corn Belt of the United States frequently bring five times that much in Chicago.

Some say the quality of the animals may be improved and thus bring higher prices. It is true that some improvement may be made; but the fact remains that Zebu cattle or those with a fraction of Zebu blood are not producers of high grade or high priced beef; and Zebu blood is almost a necessity to combat the insects, disease and heat of these tropical grass lands.

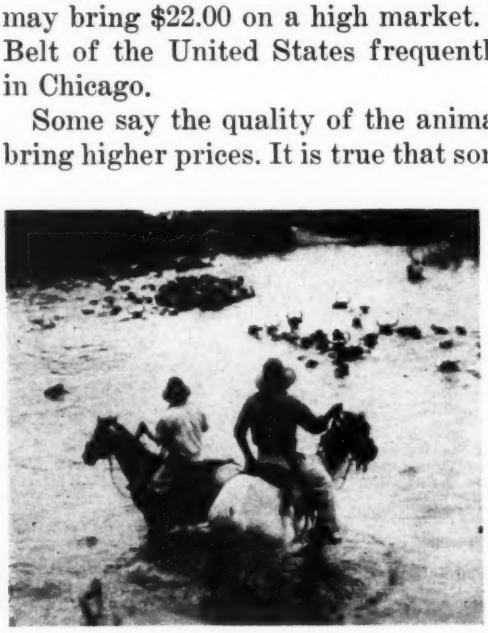

Fig. 5. Herd crossing Rupununi River. Crossing streams during the dry season offers little difficulty, but fording during the rainy period is not so easy. While the carnivorous piranha fish take but slight toll of man and beast there is always an element of danger when crossing waterways. (Courtesy of H. E. Turner, General Manager, Rupununi Dev. Co. Ltd.)

Actual heat as measured by the thermometer is not the major climatic problem of the Rupununi. But high sensible temperatures and the diseases that are encouraged by them are another matter. Such handicaps bring up the much disputed question of white acclimatization in the tropical lowlands. The writer believes that the white race can, with great care, achieve a measure of acclimatization in the lowland tropics,[3] but the process is not an easy one. Dr. Price, whose thought provoking book *White Settlers in the Tropics* was recently published by the American Geographical Society is also somewhat of an optimist. He not only states that "white settlers in the tropics leading a rather active life have a much better chance to succeed than the idle type" but also includes Jews among the white people of Mediterranean origin who "are apt to acclimatize under tropical conditions more easily than others."

[3] Earl B. Shaw, The Chachas of St. Thomas, *Scientific Monthly*, February 1934, Vol. 38, pp. 136-145.

On the other side of the question, Huntington and Ward hold out little hope for white acclimatization. Ward writes as follows: "I am convinced that even if all tropical diseases could conceivably be eliminated there would still remain those insiduous physiological effects of the tropical sun, the heat and the humidity; the general physical, mental and moral deterioration; the neurasthenia; the inability to maintain full bodily and mental vigor. Medical research cannot lessen the intensity or the brilliance of the tropical sun; no human agency has so far been able successfully to abolish the overwhelming pest of tropical insects; no magic can alter or overcome the drenching tropical rains. In the present stage of our knowledge, true acclimatization seems to be impossible, and while, with proper precautions individual white men can live in the Tropics, the race cannot persist."[4]

Fig. 6. A view of the Rupununi with mountains in the distance. The Pakaraima Mountains lie to the north of the Rupununi while the Kanuku Mountains trending in an east-west direction divide the grasslands into northern and southern sections. Note the fence in the foreground. Fence controlled ranging prevents over-grazing and eliminates indiscriminate breeding, thus favoring better pastures and better beef. But little of the area is fenced.

In view of the preceding paragraphs it may be safely predicted that while physically strong colonists may survive the climatic and disease handicaps of the Rupununi, they will have to take great precautions. Further proof of this may be found in the suggestions by G. Giglioli M.D. who listed the following directions for groups of colonists entering the British Guiana Llanos:

1. The population should be settled in villages and not scattered in farms and isolated small communities.
2. The villages should be placed in the open savannahs in localities carefully selected in relation to the distribution of surface waters, ventilation, altitude etc.
3. Houses should be of suitable design properly oriented and mosquito proof.
4. Malaria cases should be thoroly treated and new-comers from malarial areas kept under observation.

[4] R. De C. Ward, Can the White Race Become Acclimatized in the Tropics, *Gerlands Beitrage zur Geophysik*, 1931, Vol. 32, pp. 149-157.

5. Settlers should be brought to the colony between the months of November and May so as to avoid the season in which malarial infection is most easily contracted.[5]

If the climate is unfavorable for man it is far from ideal for his livestock. Cattle suffer from the heat, even the Zebus, and become victims of fevers spread by the tick that finds an ideal environment in the tropics. The dry season makes the grasses coarse and unpalatable and the wet season brings watery vegetation with little food value. Moreover, some of the animals may be drowned before they reach higher elevations during times of flood.

Like many other places in the tropics, British Guiana has several dangerous animals and plants. Poisonous snakes, including rattlesnakes, are present but not numerous. If colonization on a large scale is attempted antivenin should be available at the camp hospitals. There are no wild animals dangerous to human life, but small numbers of cattle and other livestock are lost each year to jaguars and pumas. Vampire bats attack cattle and horses and sometimes human beings; and they might at some future time become a vector of rabies in the colony, as has been the case in Trinidad. Rabies is not present in British Guiana so far as is known now. The larger rivers and creeks contain the dangerous pirai fish which on the scent of blood attack in large schools and tear the wounded man or animal to pieces. Electric eels, sting rays of large size and some crocodiles may be encountered. Thus, river bathing is safe only where conditions are known and an upset boat may mean sudden death from this source. The bitter cassava plant contains hydrocyanic acid, which may be removed by the proper preparation of the root for human consumption. Other poisonous plants occur but should not form a real public health problem for the settlers.

As previously indicated, another serious problem for the colonists arises from the character of the land forms. Mountains and streams interfere with transport and the low basin-like areas on the llanos make ideal places for flooding during the rainy season and breeding places for millions of mosquitoes.

Vegetation is both an advantage and a handicap. The grasses furnish the bases for a grazing industry; the nearby rain forest, tho it provides material for buildings and bridges is nevertheless

[5] Appendices to the Report of the British Guiana Refugee Commission to the Advisory Committee on Political Refugees Appointed by the President of the United States of America. Printed and Published by His Majesty's Stationery Office, York House, Kingsway, London, W. C. 2, p. 85.

a handicap to transport because its tangled underbrush spreads rapidly over roads and trails.

After reading all these handicaps for colonization in British Guiana, one may wonder whether anything favorable can be said for the problem. Dr. Joseph A. Rosen, who studied large scale settlement of British Guiana recently admits that the physical background is far from favorable but not impossible for colonization,

Fig. 7. Eta palms along small creek. The palm border shows adjustment to more consistent soil moisture, which, along streams, enables trees to invade the general grass cover. (Courtesy of H. E. Turner, General Manager, Rupununi Development Co. Ltd.)

and he sees one important phase of the whole problem very favorable, namely that the existing social, political and economic environments are encouraging. I quote from his report:

> Practically all of the less primitive and more desirable or more suitable countries for colonization are either occupied by the existing local populations or are controlled by governments who are not willing to open them for settlement by refugees. As a Crown Colony, British Guiana can adopt and execute settlement and development projects in a much simpler and easier way than is usually the case under other forms of administration. The Colony has no political friction or potential difficulties with any of its neighbors. The country is very sparsely populated, particularly in the interior where one may travel for days and days without meeting a single human being. The bulk of the slightly over 300,000 total population is concentrated on the coast lands.

Hence the country is in dire need of an increased population, particularly of an enterprising type backed by more or less substantial financial resources.

There is at present no dominating small group here which "owns" the country, exploiting the native population, and which would be in a position for purely selfish reasons to keep other people out.

Perhaps as a result of this situation the attitude of the local population as well as that of the press and the government offices and officials in relation to the refugee settlement problem has been extremely friendly. One hears expressions from every side that the people would welcome large scale refugee settlement. What is particularly gratifying is the fact that there is absolutely no necessity here to "soft pedal" in any way the fact that the project refers mainly to settlement of Jewish refugees. Jews would not have to come here in disguise. Economically, the coastal population is vitally interested in the development and settlement of the interior, as this would create an interior market for sugar and rice, the chief products of the coast plantations, the normal development of which is greatly hampered by the existing export quotas.[6]

In spite of Dr. Rosen's apparent optimism over the economic, social and political factors, the physical handicaps loom much larger to the author. Climate, location, land forms, soils and vegetation seem too strong a conspiracy to master. Mass colonization may achieve success if carefully planned, scientifically supervised and plentifully financed. Nevertheless it will face formidable obstacles that will try the courage of real pioneers and may not provide the rewards for such a challenge—rewards that are so necessary to achieve a high and progressive type of civilization.

[6] Appendices, British Guiana Refugee Commission Report, H. M. Stationery Office, London, 1939, pp. 88-89.

THE LOCAL COMMUNITY AS A RESOURCE FOR TEACHING HIGH SCHOOL GEOGRAPHY

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THE PROBLEM IN GENERAL

The worst shortcoming of courses in the teaching of geography, it seems to me, is their tendency to dwell on deeply involved theory rather than to get down to cases and teach what to do, and how to do it. The result is often that new teachers enter their classrooms with their eyes so fixed on the hills in the purple distance that they are scarcely aware of the warm brown earth under their feet. A ship sailing in the South Atlantic opposite the mouth of the Amazon found itself nearing the end of its fresh water supply. Having signalled a passing ship in quest of a new supply, the captain was astounded by the reply, which was, "Dip down where you are." "But," he remonstrated, "We need *fresh* water." And again came the reply "Dip down where you are." Somewhat skeptically, the captain complied, and thus learned what he should have known—that the Amazon does not at once diffuse with the sea, but maintains its identity for a considerable mileage east of its mouth in the South Atlantic.

There are various reasons why relatively little use has been made of the rich geography teaching resources to be found in an industrial community. Teachers have misunderstood the field trip, and their misuse of it as a teaching tool has put it in disfavor with administrative officers. Students cannot be expected to be enthused about field work unless they get satisfaction from it. All this is unfortunate in view of the deep satisfactions inherent in the understandings which could be developed from even the most elementary field work, properly planned and executed.

The educational values to be derived from a field trip are rarely found by simply viewing an industrial process. This is the most common error of so-called field work. Possibly the following example will serve to illustrate just how a visit to an industrial establishment may be made to function in the direction of achieving some of the major aims of geography teaching.

FIELD WORK IN ACTION—AN EXAMPLE

The industrial agglomeration of Massillon, Ohio, presents some intriguing facets, none of which is so interesting as its blast furnace

and associated coking plant. Some weeks ago I visited this establishment with a group of senior high-school students in economic geography.

Some study of the larger pattern of steel districts in the United States preceded the visit. In connection with this, the sources of major raw materials and the transportation systems involved in their delivery was examined.

For convenience in conducting the trip, the group of 180 students was divided into three groups of 60 each. We first examined the location of the establishment, which is along the west bank of the Tuscarawas River, just south of the city limits of Massillon. Here is a large plot of level land, high enough to avoid the frequent floods of this erratic stream, but accessible to the railway lines which follow it on the flood plain below. Indeed, the natural layout here is fortunate, for the two adjacent land levels make unnecessary the digging of storage pits for the iron ore and limestone.

Next we examined the coking plant. We learned that two great coal fields supply the raw material. These are the sources of high quality coking coal most accessible to Massillon.

1. The Northern Appalachian field. The Connellsville area produces coal with a high percentage of carbon. The Republic steel company controls a portion of this area adjacent to the Pennsylvania railway, which connects New York and Chicago. Massillon is on this railway.

2. The Middle Appalachian field. Pocahontas coal is rich in the gases from which the by-products of the coking process are drawn. Coal from this field moves to Great Lake ports by way of the Baltimore and Ohio and Wheeling and Lake Erie railways. Both of these lines find Massillon on their direct route from the coal field to the lake ports.

Coals from these two fields are mixed at the coking plant in the proportion of twelve Connellsville to three Pocahontas, in order to secure the greatest advantage from their combined characteristics. Ohio coal once constituted a small percentage of the mixture. But it proved unsatisfactory, and its use was discontinued.

It was noted that the by-product recovery plant handled only the four basic by-products: 1) Coal tar, which is sold by the carload lot to the Columbia Chemical Company at Dover, Ohio, which company recovers the numerous products locked up in this material; 2) Ammonia gas, which is bubbled thru sulphuric acid to make ammonium sulphate, which is sold at the plant for fertilizer; 3)

Benzol, which is sold to oil companies which blend it into a motor fuel; 4) Fuel gas, which is used to provide part of the power used to generate electricity for the associated steel mill, and also for heating purposes in the steel mill.

The major function of the coke plant is to provide coke for the blast furnace, but a little coke is sold for domestic fuel.

Our attention was next directed to the blast furnace. There is something dramatic about the furnace itself. We watched for a few minutes the process of drawing off the molten metal and slag. We noted that usually the metal is carried in ladles to the nearby steel mill, and the portion of metal which the mill is not at the time prepared to use is cast into "pigs" and stored for use when the blast furnace is not operating.

It was pointed out at this point that the reason the corporation operates a blast furnace here instead of shipping in pig iron from a large steel district is that, due to the accessibility of coal, as previously indicated, it is cheaper to make "pig" locally. Under favorable price conditions scrap steel is substituted for a portion of the pig iron used in the Massillon steel mill.

We watched the loading of the "skip hoist," or car which carries the raw materials to the top of the blast furnace. We learned that the ore is of several sorts, and noted the names of the mines from which it comes. The reason several different ores are used is that each contains some material besides iron which is essential to steel making. For example, we learned that ores from upper Michigan have in them important amounts of manganese, which otherwise must be imported from Soviet Russia. This fact makes feasible the purchase of these ores along with that which is mined at Mesabi, altho the former are mined by the shaft method, whereas Mesabi ores are largely open-pit mined. Ore and limestone are brought to Massillon thru three Lake Erie ports: Cleveland, Lorain and Huron, and by way of the Wheeling and Lake Erie and Baltimore and Ohio Railways.

It is well known that blast furnaces and steel mills are located at points where there is available a plentiful supply of relatively clear water. This water is chiefly used for cooling iron and steel furnaces. We had always imagined that the Republic plant at Massillon drew its water supply from the river near which it is located, altho a speaking acquaintance with this erratic, silt laden stream should have warned us that this was not the case. Four wells, sunk in the deep glacial gravels which characterize northeastern Ohio,

provide a dependable supply of water which needs only superficial treatment to prevent its clogging cooling devices in the furnaces; one of the myriad blessings bestowed by the great ice sheet.

The steel making establishment normally employes directly about one-third of Massillon's labor force. Several smaller establishments, notably a roller bearing plant, use locally made steel almost exclusively in their products. Indirectly the steel plant provides support for many additional workers, for employees' salaries and wages are largely spent in local business establishments. Since these establishments in town purchase much produce from the farms (mostly dairy) of Stark County, the influence of fluctuations in steel making at Massillon is felt outside the community. Many of the steel workers own homes in the community, and thru tax payments contribute to the support of local government and schools. This supplements the taxes paid by the corporation itself. Thus the steel plant plays a significant role in providing sustenance to Massillon. Logically, any threat to the continuance of steel making at Massillon commands great local concern.

We inquired about markets for steel made in the Republic plant at Massillon. It is evident that the new continuous strip mill built by the Corporation on the Cuyahoga River at Cleveland recently has taken over a good deal of the automobile business formerly handled in Massillon. This is because the new mill can assemble all raw materials more conveniently than is possible at Massillon. Likewise, it is more convenient to ship the finished product from Cleveland, than from Massillon to Detroit. Some automobile material, chiefly sheets, are still made in Massillon, but it is largely the small orders not economical to handle in the Cleveland mill. The most interesting of all the things we learned about this local industry came a week after the trip was made. It appears that Massillon is about to stop attempting to compete for the automobile business, and center its productive energies on what has long been a specialty here—stainless steel. Republic has announced the second expansion of its Massillon Stainless division in two years. This is in accord with Massillon's position at some distance from the Great Lakes and from a major coal field.

SUMMARY FROM THE STUDENTS' VIEWPOINT

Upon our return to the classroom, we plotted on outline maps of the United States the locations of the chief sources of raw materials, including the Middle and Northern Appalachian coal fields,

the Mesabi and Michigan iron ranges, and the islands in western Lake Erie which supply the limestone. Lake ports and railways were placed on the map. A brief summary of the other data was written on the back of the map.

SUMMARY FROM THE TEACHER'S VIEWPOINT

The most important results are:

1. A fuller appreciation of the factors of local natural environment to which Massillon's steel industry is adjusted.

2. A better understanding of the relation of the steel industry of Massillon to the larger pattern of steel production in the United States.

3. An understanding of Massillon's position with relation to the major lines of transportation entering the community, and the relation of these lines to the Great Lakes and to two of our great coal fields. And as a result of these ideas comes the feeling that geography is related not only to Brazil, Java, or the Mesabi Range, but that, like charity, it begins at home. Every student attending the trip will, for its very occurrence, be able hereafter to travel more intelligently.

As rapidly as we can lay the ground work for more trips, they will follow. We are fully committed to first-hand geography.

BASIC GENERALIZATIONS IN FOURTH GRADE GEOGRAPHY

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The study on which this article is based attempts to develop a list of basic generalizations in fourth grade geography. The idea originated in a meeting of fourth grade teachers at Scottsbluff, Nebraska, during the fall of 1933. In this meeting the writer asked each teacher in the group to state the specific outcomes he sought in teaching geography. The confusion led to this investigation.

Eight elementary school texts of the one-cycle type were analyzed and generalizing statements marked according to cues indicating relationships. The cues that Billings used served as a starting point. "Such verbs as foster, create, give rise to, are founded on, and the like indicate the existence of correlations."[1] Other cues such as the introductory words to subordinate clauses like because, for, in order that, that is why, etc., help to identify relationship.

There were 2,333 relational statements marked in the books. Of these, 1,394 were selected according to the criteria given below and united into 99 basic generalizations. The omission of 939 relational statements and the boiling down of 1,394 others into 99 generalizations may seem a drastic thing to do. But Horn says, "The concepts in textbooks and courses of study are not only too difficult, but also too numerous to be mastered. There must be a sharp reduction in the amount to be learned."[2]

Four criteria were used to determine selection:

(1) *Spread.* Appearance in at least three of the books analyzed.

(2) *Degree of Generality* sufficient to facilitate understanding of details, but not so general as to be confusing in meaning.

(3) *Validity.* The findings of Wallace[3] and Billings[4] were accepted as measures of validity.

(4) *Fourth Grade Level* as defined in the recommendations of the Committee on the Teaching of Geography.[5]

These ninety-nine generalizations involved nine different types of geographic factors distributed as follows: shape of the earth, 6; position of sun, 10; land forms, 12; climate, 15; water, 11; food, 10; clothing, 5; shelter, 13; and trade and travel, 17. They were also distributed among the three major types of geographic relationship as follows: (1) nature to nature relationships, 30 gen-

eralizations; (2) nature to culture relationship, 59 generalizations; and (3) culture to culture relationships, 10 generalizations.

These generalizations are not to be understood as immutable laws, but rather as statements of great probability or definite trend. The language in which many generalizations are stated may seem to indicate the former, but regardless of the language the latter meaning is always intended.

The generalizations are prepared for teachers and textbook writers and not for pupils. Consequently they are often stated in language too difficult for the pupil. They are meant to be guides for the teacher in developing the thinking of pupils; guides to the curriculum maker and to the writer preparing materials for the teacher and pupil. Relative to their use by teachers, one statement will suffice. Generalizations should be "arrived at" thru thinking about data and not learned as isolated materials.

The generalizations developed in this study are not in any sense final. They are only as sound as the logic of the writer. It is not likely that any two persons would arrive at the same number as the writer or would word them the same. The writer does believe that anyone checking the generalizations with the sources from which they were derived will find them directly stated or implied in the context.

The generalizations listed below are arranged as (1) controlling generalizations and (2) those that are largely subordinate to the controlling generalizations. The controlling generalizations are taken from Billings[1] and Wallace,[3] with source indicated.

BASIC LIST OF GENERALIZATIONS

I. Generalizations Relating to the Shape of the Earth

1. A. The shape of the earth and its relation to the sun determine climate conditions.* Wallace, 59.
2. a. The earth is a great sphere.
3. (a) The earth seems flat because it is so very large.
4. b. The earth's turning on its axis causes night and day.
5. c. The earth moves in a circular path around the sun; this causes the seasons.
6. d. The seasons south of the equator are opposite to those north of the equator.

* Wallace 59. indicates that this generalization is included in her list on page 59.[3] Other generalizations from Wallace are similarly indicated.

II. Generalizations Relating to the Position of the Sun

7. A. The solar heat on our earth is the necessary condition of all activity and life. Wallace, 35.
8. a. The position of the sun affects the temperature of a region.
9. (a) The lower the sun is in the sky and the more slanting the sun's rays, the cooler it is.
10. (b) The higher the noon day sun, and the more nearly vertical the sun's rays, the warmer it is.
11. (c) A region where the noon day sun is high in the sky at all times of the year is always warm.
12. (d) Where the days and nights are nearly the same length thruout the year the seasons are nearly the same temperature.
13. b. Regions near the equator are usually warm the year around.
14. c. If other geographic factors are identical, the farther regions are from the equator, the cooler they are, and the nearer the equator the warmer they are.
15. d. The farther a region is from the equator, the longer the days in summer, and the shorter the days in winter.
16. (a) At the poles summer is a single day six months long and winter is a night six months long.

III. Generalizations Relating to Land Forms

17. A. "There is a direct causal relation between land forms and modes of life." Wallace, 90.
18. a. "In mountains the pastures are universally used for stock raising." Wallace, 92.
19. (a) Goats are especially well suited to mountain pastures.
20. b. "The remoteness and scattered nature of the highland pastures involve a semi-nomadic existence for the herdsmen and shepherds." Wallace, 92.
21. c. In the mountains farming is difficult because of lack of level space. Wallace, 94; **Billings: generalization 7.
22. (a) Mountain slopes are often too steep for farming.
23. (b) Terraces are built on mountain sides to increase the amount of level space for crops.

** This generalization is also found in Billings' list as generalization 7. Others from Billings are similarly indicated.

24. d. Altitude determines successive tiers of vegetation on the mountainside.
25. e. People who live near the sea tend to make their living from the sea. Wallace, 17.
26. (a) Where coastland furnishes too little land suitable for farming, much food is taken from the sea.
27. f. Polder lands make especially fine pasture land, and produce excellent crops, especially hay.
28. g. Dairying is the chief work in the pasture lands.

IV. Generalizations Relating to Climate

29. A. "In its bearing on human life, climate is second to no other element in the natural environment." Wallace, 36.
30. a. In cold regions ways of living are closely related to climate and environment. Wallace, 84.
31. b. Ocean currents affect the climate of regions near which they flow.
32. c. People in the tropics do not work during the hottest part of the day.
33. d. Deserts get hot during the day and cold during the night.
34. e. Population of dry regions is usually sparse. Wallace, 77.
35. f. Cold regions are sparsely settled. Wallace, 77.
36. B. Climate more than anything else determines the nature and abundance of vegetation. Wallace, 83.
37. a. The polar regions are too cold for crops or food plants.
38. b. In the tropics plants grow the year around.
39. c. Farming in the hot, wet regions is of the simplest type.
40. d. Hot, wet regions produce an abundance of vegetation.
41. e. Wet grasslands can be used for farming, but the dry grasslands are used for grazing.
42. f. The Mediterranean climate is favorable to the growing of tree crops (fruits, nuts, olives) and grapes.
43. (a) Wheat is a common crop in regions having Mediterranean climate.

V. Generalizations Relating to Water

44. A. Water supply is essential to all life, hence to all human activity. Wallace, 144.
45. a. Heavy rainfall combined with hot weather makes all plant life grow rapidly.
46. b. Forests grow in regions of heavy rainfall.

47. c. Date palms grow in hot, dry regions if the roots can reach water.
48. d. Grasslands exist where there is ample rainfall, yet not enough for forests to grow.
49. (a) Dry grasslands have a lighter growth of grass than the wet grasslands.
50. B. "Moisture either thru rainfall or irrigation is essential to the pursuit of agriculture." Billings: generalization 4.
51. a. The world over, the semi-arid regions are used for grazing. Billings: generalization 9.
52. (a) Sheep and goats can live in a drier region than can cattle.
53. C. "In desert regions all manifestations of life follow the distribution of springs." Wallace, 143.
54. D. Wet lands, like the polders, must be drained before they can be farmed.

VI. Generalizations Relating to Food

55. A. "The food supply is one of the closest ties between man and his environment. . . ." Wallace, 182.
56. a. Where food is scarce people move to be near a food supply for themselves and their animals.
57. b. Where summers are too short and cool to raise crops, people live by hunting and fishing.
58. c. People in hot, wet regions get some of their food by hunting and fishing and some of it from wild plants and from gardens.
59. d. In very crowded regions all available land is used to raise food.
60. e. Land in crowded regions can not be spared for pasturing animals.
61. f. In crowded regions little meat is eaten and the source of supply is largely fowl and pigs.
62. g. Fat, such as butter or a substitute therefor, is a common element of food.
63. h. In hot, wet regions natives do not need to store up food for future use.
64. i. Where seasons change, people are obliged to store up food for the time when crops will not grow.

VII. Generalizations Relating to Clothing

65. A. The style and material of clothing are suited to the weather and materials where the people live.

66. a. People in hot, wet regions wear very few clothes.
67. b. People in hot, dry regions wear heavy, loose clothing.
68. c. People in cold regions usually wear fur clothing.
69. d. Natives who trade with the white man usually change their native costume to cloth which they purchase from the white man.
70. e. Cotton and silk are commonly used for clothing in regions where they are produced.

VIII. Generalizations Relating to Shelter

71. A. Houses are built of materials most easily obtained. Wallace 128.
72. a. Where wood is plentiful, it is most commonly used for houses. Wallace, 128.
73. b. Sun-dried brick and adobe are commonly used for houses in hot, dry regions. Wallace, 128.
74. B. "The form of the human house depends on natural conditions." Wallace, 127.
75. a. Houses in dry countries usually have flat roofs.
76. b. Houses in rainy countries usually have steep roofs.
77. c. Grass roofs are the common type of roof in the grasslands.
78. d. Nearly everywhere in tropical regions the dwelling is raised on stakes or piles. Wallace, 128.
79. e. "Nomadic peoples must use a form of shelter that can be readily taken down and moved, hence, a tent." Wallace, 127.
80. (a) Herders in hot, dry regions use wool, goat's hair, or camel's hair to make their tents.
81. (b) Hunters and herders in cold regions use animal skins for tents.
82. f. Rude earth and stone huts are common in cold regions.
83. g. Where the population is exceedingly dense, many people live on boats.

IX. Generalizations Relating to Trade and Travel

84. A. "The necessity of the exchange of products between regions of surplus and deficiency produces trade." Wallace, 107.
85. a. Oasis towns are trade centers.
86. b. White men go to the very cold and very hot regions as traders.

87. B. Trade centers develop where there is a break in transportation. Wallace, 117.
88. C. The geographic nature of a region determines the type of travel and transportation. Wallace, 98. Billings: generalization 127.
89. a. Geographic barriers cause a change in the method of travel. Wallace, 96.
90. b. Streams and bodies of water are commonly used as a natural highway of travel. Billings: generalization 126.
91. (a) Boats differ according to material available and the ingenuity of the people.
92. (b) Canals are common highways of travel in many places.
93. c. Camel caravans are almost universally used in hot, dry deserts.
94. d. Sleighs or sleds are common means of travel in cold regions.
95. e. In mountain regions roads tend to follow valleys.
96. f. In mountains routes of travel go thru passes or tunnels.
97. g. It is difficult and often impossible to build roads or railroads in the hot, wet regions.
98. D. The nature of the roads shows the advancement of the people. Wallace, 111.
99. E. Lighthouses are built and buoys are used to guide ships into harbors and warn them of dangers at night.

In conclusion one might ask, "Why all the effort to determine the basic generalizations of a subject or any narrow part of it, as this study does?" One answer might be categorically given in the following two quotations:

> "Concepts and generalizations go beyond subject matter; they are at once interpretations of subject matter . . . and direct objectives of education. . . . Concepts and generalizations drawn from subject matter and built into the pupil's mental outlook help bridge the gap between information as such and educational values as such."[6]
>
> "Only as conclusions are reached is there any intellectual deposit available for future understanding."[7]

This article is an abstract from the writer's Field Study Number Three submitted to Colorado State College of Education in partial fulfillment of requirements for the degree of Doctor of Philosophy. The materials were prepared while the writer was Superintendent of Schools at Scottsbluff, Nebraska.

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PACIFIC NORTHWEST INDUSTRIES—REGIONAL GEOGRAPHY IN THE SEATTLE PUBLIC SCHOOLS

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For several years, the Seattle Public Schools have been experimenting with a semester course for the ninth grade called Pacific Northwest Industries. The point of view underlying the direction of the course is essentially that of human regional geography, seeking to identify, explain and interpret the fundamental relationships between basic economic activities and the natural conditions afforded by the physical environment of the region. The course had its inception in the minds of several teachers who had been stimulated by and trained in the viewpoint of modern geography, but who found little opportunity for the satisfactory expression of these experiences in the traditional subjects of the junior or senior high schools. Having grown from a single experimental class in 1934 until it was offered in nine separate schools to a total of more than a thousand students during the school year of 1938-1939, the course is now firmly established in the social studies curriculum of the Seattle Public Schools.

DIFFICULTIES ENCOUNTERED

In the early stages of experimentation, several major difficulties were anticipated and encountered. Where would one find either the materials for classroom use, or teachers qualified by experience and

training to direct such a course? And how could a place be found in an already crowded curriculum for another high school subject? These constituted problems of the first order to administrative and classroom enthusiasts alike, and are still under attack after five years of continuous effort.

The problem of materials for study has proved the easiest to solve. Once seriously undertaken, it was discovered that the development of the regional planning movement was producing a wealth of material in the form of state, regional and national publications, some of which were directly usable in the classroom and others readily adapted to such use. The Pacific Northwest, comprising the states of Washington, Oregon, Idaho and Montana, was one of the first regional divisions to be recognized by the National Resources Committee of the federal government, and the initial report of the Pacific Northwest Regional Planning Commission issued in 1936 has been invaluable in providing scope and content for the school subject. Close relationships have also been established with the Northwest Regional Council, a privately financed, non-profit organization of business and professional leaders in the regional movement, with a trained staff of experts to direct a program of regional research and publication. One of the objectives of this organization is "to make available at all educational levels accurate and stimulating materials concerning the social, economic and governmental problems of the region." A number of publications under its imprint have already appeared and more are planned for the immediate future.

A regular, dependable source of information about the regional activities of the Pacific Northwest is found in the daily newspapers, which pupils are encouraged to watch carefully for items related to the basic industries of the region. Many of these industries provide seasonal events of such a character as to make them suitable for presentation in both picture and feature form. The newspapers of port cities like Seattle, Portland and others are rich in pictures and articles which depict cultural-natural relationships growing out of commercial and fishing adjustments to the resources of the sea. Inland news centers, on the other hand, make corresponding capital out of events related to the utilization and conservation of soil, water supply, minerals and grazing areas. Practically all sections of the region are resource conscious of the hemlock, fir and pine forests, which support the pulp and lumber industries that form the economic backbone of the region as a whole.

The development of such federal projects as the Grand Coulee and Bonneville dams has stimulated a regular stream of news items and pictures describing every step that has been and must be taken to realize fully the power, irrigation and navigation potentialities of these great human works. National attention, too, has been focused upon the economic development of the Pacific Northwest by these forward-looking undertakings, as well as by such topics as the creation of the Olympic Peninsula National Park, the protection and conservation of the fisheries of North Pacific waters, the "dust-bowl" migration westward, the difficulty of maintaining commercial relation with a chaotic Asia, and other national and international problems. With so much current material to draw upon there was little need for a textbook except as a reference and organization aid. Two Seattle educators, however, set to work to collect, digest and adapt to classroom needs the more usable regional and state publications, with the result that a high school text is now available.

AN IDEAL REGION FOR STUDY

The Pacific Northwest is in many respects an almost ideal region for geographical study. Both in types of human activities and in variety of natural conditions it includes practically every aspect that one needs for a comprehensive analysis of regional geography. It is doubtful if any section of the United States has a more clearly defined regional homogeneity from almost any point of view. Historically the region has been recognized as a distinct entity from its earliest beginnings as the "Northwest Coast" thru its existence as the "Fur Empire" of the Hudson's Bay Company, the "Oregon Country" at the end of the overland trail, or the "Promised Land" of the New Deal prophets. In its economic development the Pacific Northwest has recapitulated in less than half the time the complete historical sequence of the nation, including exploration, fur trade, pioneer settlement, exploitation of natural resources, agricultural specialization, expansion in world trade and a planned program of economic development based upon the magic of electrical power. Here is scope and sequence enough to satisfy the most extreme of "progressive" curriculum builders.

Conditioning at all times the economic and social development of the region, have been two related geographic factors: first, the peripheral location of the region in relation to national and world centers of population and culture; and second, the exhaustible

character of its natural resources of furs, timber, fish, minerals and soil. Distance from markets and labor supply combined with its wealth of exploitive resources has given economic unity to the region as an exporter of raw materials and partially processed commodities. These conditions also have determined to a large extent the types of people that have migrated to the region and certain other population characteristics such as geographical distribution and density and occupational classification. The economic history of the nation, however, teaches that a region whose economy is based primarily upon the exploitation of natural resources will sooner or later face the crisis of depletion, if not exhaustion, and the necessity of basic readjustments if it is to continue to grow in population and to maintain its standards of living. There is considerable evidence thruout the Pacific Northwest, at the present time, that such a crisis is near at hand if not already here. Economic, social and political unrest together with widespread acceptance of the necessity for economic planning, would seem to indicate that significant changes in the basic economy of the region are forthcoming. Two non-exportable resources are now receiving major attention in plans for the future, namely, hydroelectric power and recreational attractions, but we can do no more than call attention to these trends in this connection.

General Outline and Procedures

Perhaps enough has been suggested as to the regional character and personality of the Pacific Northwest to reveal its richness as a subject for study in the schools of the area. Whether one follows the more traditional approach to regional geography of historical background, geographical analysis, and human adjustments; or accepts the "progressive" approach thru problems determined by the immediate needs and interests of the pupils, is a matter of choice. The writer has tried both with about equal satisfaction to him, altho he is ready to admit that the pupils seem to prefer the problem approach. While relative emphasis and specific content is never the same from one semester to another because of the dynamic character of the subject, in general outline the course is usually divided into four major units of work corresponding in time allotment to four administrative quarters of five weeks each in the semester. These units might be characterized as follows:

Unit One: Introductory historical and geographical survey.

Unit Two: Exploitive industries of forests, fisheries and minerals.

Unit Three: Specialized agricultural adjustments to natural conditions.

Unit Four: Hydroelectric power and the industrial future.

Each individual teacher must, of course, develop his own techniques and motivating procedures. If there is anything distinctive about those of the writer it is to be found in his persistent use of the map as a means of reducing the scope of each problem to a dimension within the comprehension of the individual student. It is his theoretical contention that every regional problem of a geographical nature can be and should be made the theme of a map, and that such a map, if it constitutes a truly creative activity in gathering, translating, and representing pertinent information, is the best possible medium of expression and source of understanding for the student of regional geography. Type studies, group problems, individual projects, field trips, moving pictures and all such educational experiences are utilized when they contribute to the goal desired, which is *a regional understanding of how human living in the Pacific Northwest depends upon wise, intelligent adjustments to the great variety of natural conditions which the region possesses.* It is hoped that this account of how the Seattle public schools are striving to achieve this end will stimulate similar efforts in other regions of the country and so aid in the application of regionalism to the field of education.

THE CHICAGO MEETING OF THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

FLOYD F. CUNNINGHAM, Secretary

The twenty-sixth annual meeting of the National Council of Geography Teachers convened at the University of Chicago and at the Hotel Windermere East, on December 27 and 28, 1939.

The excellent program arranged by President Edwin H. Reeder was well attended by interested people from every section of the United States.

The convention opened with greetings by Professor C. C. Colby of the Department of Geography, University of Chicago; the response was given by Professor J. R. Whitaker of Department of Geography, University of Wisconsin.

The first paper, "Modern Trends in Geographic Education," was presented by Erna G. Gilland of California, Pennsylvania. Mrs. Gilland analyzed very carefully present trends and made a strong plea for more functional geography.

The second paper was a report, "The Geography Section of the World Federation of Educational Associations' Cruise to Latin America," by Earl B. Shaw, State Teachers College, Worcester, Mass. The geography section held three meetings, two on shipboard, and one at the University of Puerto Rico. Much interest was shown at the meetings where the papers were read and large audiences attended. "Besides the opportunity for geographic discussions in the sectional meetings, National Council members and others had many opportunities to study Latin American countries and to see many different landscapes," said Mr. Shaw.

The next paper was presented by Edgar Bruce Wesley of the University of Minnesota. This paper was entitled "Wanted: A Synthesis of Guides to Seeing America." "Americans who lived for generations with almost no detailed guidance in seeing their country are now lost among hundreds of guidebooks," said Professor Wesley. "Their problem is not one of finding information, but of finding it in a practicable and economical form. The next needed development is a popular synthesis of existing guides. This synthesized guide must be a judicious compound of history, geology, geography, and general cultural information."

The final paper of the first session was presented by Rose B. Clark of Nebraska Wesleyan University, Lincoln, Nebraska. "Mixed Cargoes in Trans-Pacific Trade" was the title to this very interesting paper. A cruise on a trans-Pacific freighter last summer gave stimulus to this study and provided much first hand material for its investigation.

Wednesday afternoon was devoted to laboratory exercises under the supervision of Edith P. Parker of the University of Chicago. Miss Parker was assisted by Maude Johnson, Supervisor of Elementary Grades, Rockford, Illinois.

"A Teacher Training Lesson: Laboratory Exercises in the Diagnosis of Pupil Abilities" was first presented by Miss Parker. She directed prospective teachers in the observation of actual lessons.

A sixth grade lesson was taught by Dorothy Mandeville of the public schools of Rockford, Illinois, and a high school lesson was taught by Monica Kusch, public schools, Flossmoor, Illinois.

Following Miss Gusch's presentation the laboratory exercise was completed by Miss Parker and Miss Johnson.

At the close of the program tea was served on the main floor of Rosenwald Hall.

On Thursday evening Professor Rudolph Bennitt, Representative of the Wildlife Federation of America, spoke to a large audience on the subject, "Wildlife Conservation and Geography." Professor Bennitt closed the evening program by showing some films depicting several aspects of wild life conservation.

The Thursday meetings were divided into two sections. Section I, Elementary Education, was presided over by Floyd F. Cunningham, Secretary. Section II, Secondary Schools and Colleges, was presided over by O. W. Freeman, Second Vice President.

Several papers were presented in each of the sectional meetings. The first paper of Section I, "Bringing Reality into the Imaginary Journey," was presented by Ferne Woodruff of the public schools of Sullivan, Illinois, who outlined and discussed how she used the travel method in teaching geography in the seventh and eighth grades.

Conrad F. Wilson of the public schools, Harrisburg, Illinois, in a paper entitled "Telling the Truth in Geography Teaching," said "the minds of children must be trained to cope with the issues at hand. Above all other considerations, we most desire an informed and aware citizen as a product of our teaching. In the elementary grades this training could best be secured by an enlarged and supplemented course of geography."

Zoe A. Thralls next presented a paper entitled "Using Current Events Materials in Elementary School Geography." In her discussion Miss Thralls answered two questions: How are current events used in the teaching of geography? and, How should current events be used in the classroom?

The fourth paper was given by Adelaide Blouch of the public schools of Lakewood, Ohio, and was entitled "Field Work in the Middle Grades." "Field activity in the middle grades is an invaluable type of experience," said Mrs. Blouch, "Aside from factual information received and skills derived, classes have given evidence of broader interests, a scientific attitude, and appreciation of things around them."

The final paper of this section was presented by Thomas F. Barton of the Southern Illinois Normal University, Carbondale, Ill. His subject was "Primary Geography: Content and Teaching Methods." Professor Barton emphasized that primary geography, a much neglected and undeveloped phase of geography, offers unusual opportunities and vast potentialities which should be utilized.

The discussion which followed was led by Ivan Diehl of the State Teachers College, Frostburg, Maryland.

The first paper of Section II, "Visualizing Geography with Films," was presented by Claire Symonds of the Quincy, Illinois, High School.

The second paper, "The pressure of Economics on Geography" was read by C. E. Cooper of Ohio University. Professor Cooper analyzed carefully two ways in which economic pressure is being brought to bear on modern geography.

Leavelva Bradbury of the State Teachers College, Oshkosh, Wisconsin, next presented a paper entitled "The High School Library in Economic Geography." "Of the various courses offered in high school geography, the course in economic geography is probably best managed," said Miss Bradbury, "Due to the organization of leading texts, accommodation of allied library materials is a reasonable matter. A useful shelf of books can be arranged with moderate expense to the library."

Sadie Friedlander, of the Hyde Park High School, Chicago, discussed "The Creative Use of Source Materials." A group of her students showed how effectively problems can be solved thru cooperative attempts. Slides of graphs, cartoons, and illustrative materials made by the students were used in the demonstrations.

The final paper, "Geography in the Teacher Training Colleges of England," was given by Ina Cullom Robertson of the State Teachers College, Valley City, N.D. During a recent residence in England Miss Robertson had an opportunity to visit a number of teacher training colleges and to talk over problems of mutual interest with principals, vice principals and geography lecturers. Out of her experience she analyzed the position of geography in the curricula of English institutions.

The discussion that followed was led by W. O. Blanchard of the University of Illinois.

A joint luncheon with the Association of American Geographers was held at the Hutchison Commons at the University at 12:30 P.M.

The program of Thursday afternoon was in the form of a joint meeting with the Association of American Geographers. The theme was "The Changing Political Geography of the World." The first paper, "The World's Oil," was presented by John W. Frey of the Department of the Interior.

Robert B. Hall of the University of Michigan next gave "Raw Material Deficiencies and American Regional Dependence."

"Seventy Years of the Suez Canal" was the title of a paper read by W. O. Blanchard of the University of Illinois.

A paper entitled "Mussolini-Geographer" was read by Harold S. Kemp of Harvard University.

Eugene Van Cleef of Ohio State University discussed the "Hinterlands of the Eastern Baltic Ports."

"The Situation of Budapest" was the title of a paper read by George Kiss of the University of Michigan.

"Is Germany a Country? What is the Test?" was the subject of Mark Jefferson of the State Normal College, Ypsilanti, Michigan.

The final paper, "Geopolitical Immaturity in the Mid-Danube Area," was read by Richard Hartshorne of the University of Minnesota.

At 5:15 in Rosenwald Hall the Geographic Society of Chicago and the Department of Geography of the University of Chicago were hosts at tea to the members and guests of the Association and the National Council of Geography Teachers.

The annual banquet was held in the ballroom of Hotel Windermere East, on Thursday evening. Following the banquet the Distinguished Service Award was presented to Professor Mark Jefferson by Marguerite Uttley, Chairman of the Distinguished Service Award Committee.

The annual address was given by Professor Raymond E. Crist of the University of Illinois. His subject was "Crosscurrents in the Mediterranean." This very interesting and enlightening address was well illustrated with slides.

BUSINESS MEETINGS OF THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

The annual meeting of the Board of Directors and the Executive Committee of the National Council of Geography Teachers was held at the Hotel Windermere East, Chicago, in two sessions, the first, December 27, 1939 at 10:00 P.M., and the second, on December 28, 1939 at 10:00 P.M.

FIRST SESSION

The meeting was called to order by President Edwin H. Reeder.

The minutes of the twenty-fifth annual meeting which was held at Boston, Massachusetts were first approved.

After the approval of the minutes President Reeder called for committee reports. Marguerite Uttley first made a brief report for the Distinguished Service Award Committee. As chairman of the committee on tests, Miss Uttley then reported the progress that is being made on the fourth grade test which the commitee has about ready for publication. The committee is also working on a second test, the details of which will be forthcoming later.

In the absence of Nora Zink, chairman of the Committee on the Summarizing of the Abstracts of Geographic Surveys, Zoe Thralls made the report. Miss Zink has practically completed her work on abstracting all articles on geographic education. The complete report will probably be ready by May. The report will consist of abstracts on all research and will contain almost three hundred pages. There will also be an an-

notated bibliography, and a treatment of all research work done on testing in elementary educational geography, as well as all research work done in the field of teacher training. Miss Zink's report is to be published in the *Encyclopedia of Geography*, edited by Professor Paul Monroe of the University of Illinois.

After reporting for Miss Zink, Miss Thralls next reported for the Research Committee of which she is chairman. This report dealt with the form or system the committee is setting up for the handling of research funds. The full report of the committee will be published.

Following Miss Thrall's report, President Reeder read the report of the Committee on Visual Education of which William Gregory is Chairman. After some discussion, it was agreed that a list of geographical films, which Mr. Gregory has carefully worked out, should be published in the JOURNAL OF GEOGRAPHY. The Secretary was authorized to order 2,000 reprints for distribution.

Erna G. Gilland next reported on the San Francisco meeting of the National Council of Geography Teachers held in connection with the National Education Association. Mrs. Gilland was authorized by the Board to work out details of the meeting that the National Council of Geography Teachers plans to hold in connection with the N.E.A. meeting at Milwaukee. A motion was made to authorize expenditure of not more than $30 to be used for publicizing the meeting. The motion was duly seconded, and voted upon, and carried. Following, she reported on the work she had done in connection with the World Federation of Education Associations.

Harrison H. Russell, Treasurer of the National Council of Geography Teachers, then distributed copies of his annual report.

A motion was made and seconded that the Treasurer's report be accepted.

The motion carried.

The Nominating Committee, consisting of Marguerite Uttley, chairman, H. J. Chatterton, and William Berry, presented its report which consisted of the following: *President,* Cora P. Sletten; *First Vice President,* Alice Foster; *Second Vice President,* J. W. Hoover; *Secretary,* Floyd F. Cunningham; *Treasurer,* H. Harrison Russell; *Executive Committee,* terms to expire 1942: Edwin H. Reeder, Henry Becker, and H. O. Lathrop; *Distinguished Service Award Committee,* term to expire 1944: Guy-Harold Smith; *Directors-at-large* (elected for one year): Erna G. Gilland, Edna Eisen, Alison Aitchison, Herbert Minton, and Dorothy Mandeville; *Research Committee:* J. Russell Whitaker.

A motion was made by Mr. Berry and duly seconded that the report of the Nominating Committee be accepted and the Secretary be empowered to cast one vote for the slate. The motion carried.

The Secretary then made a brief report of his activities for the past year. At the close of his report Mr. Cunningham then read the following letter.

> My dear Mr. Cunningham:
>
> The Public Service Program Division of the National Broadcasting Company has been considering the possibility of the various educational groups interested in either classroom or adult education, the members of which might be willing to assist in evaluating our educational and public service programs and to advise us, when necessary, concerning questions of educational policy. Naturally, we would like to have the National Council of Geography Teachers represented on such a group.
>
> To help us with our plans, can you give me the names of several of your officers or members who, in your opinion, would be most valuable in representing the point of view of your organization in such a panel. Any assistance you can give us will be very much appreciated.
>
> Sincerely,
> W. G. PRESTON, JR.

Following the Secretary's report, there was a rather lengthy discussion relative to effecting plans to make it possible for all interested members of the National Council to attend the meetings of the Board of Directors and of the Executive Committee. No action was taken at this time.

There next came up the question of whether or not it might be desirable for the National Council of Geography Teachers to develop some fellowships to be awarded on a merit basis for work in educational geography. By agreement it was decided to postpone the discussion until the next meeting.

A motion was made and duly seconded for adjournment and was carried.

(Whereupon the meeting of the Board of Directors was adjourned at 11:20 P.M.)

SECOND SESSION

The second session of the business meeting of the National Council of Geography Teachers convened Thursday evening, December 28 in Room 517, Hotel Windermere East, Chicago, at 10:00 P.M., President Reeder presiding.

J. E. Switzer, chairman of the Auditing Committee stated that the members of the committee had gone over the Treasurer's books and had found them correct in all respects. The committee raised the question as to the advisability of keeping the research fund in a separate banking account from that of the other funds of the Council. A motion was made, seconded, and voted upon that the Auditing Committee's report be accepted.

The motion carried.

After some discussion it was moved that the annual report of the Treasurer be published in a similar manner to the Secretary's report. The motion was seconded, voted upon, and carried.

Esther Anderson, as chairman, next reported for the Resolutions Committee.

Report of the Resolutions Committee, December 28, 1939

Resolved, That the National Council of Geography Teachers authorize its president, Dr. Reeder, to extend greetings and best wishes to Dr. and Mrs. A. E. Parkins of Nashville, Tennessee.

Resolved, That the members of the National Council of Geography Teachers thru its Secretary, offer their thanks and appreciation to the members of the Department of Geography of the University of Chicago and the Geographic Society of Chicago for their assistance in the preparation and arrangements for the meetings and for the teas.

Resolved, That a similar letter of appreciation be sent to the management of the Windermere Hotel.

Resolved, That special thanks be extended our president, Dr. Reeder, and his committee, for the preparation of the splendid program which we have enjoyed.

Be it further *Resolved,* That the president send a radiogram to Dr. Stamp, who could not be present.

Signed

ESTHER S. ANDERSON, Chairman
THOMAS F. BARTON
H. J. CHATTERTON

Miss Anderson made a report dealing with the organization of State Councils of geography teachers. Summaries of the activities from various state councils were presented by Miss Anderson.

Several persons raised the question as to what should be done with reference to stimulating the formation of state councils and what advice should be given state councils with reference to membership in them. One group wants membership to be

limited to National Council members, while another group thinks in terms of the larger state organizations.

George J. Miller reported as follows:

"At the time the National Council was organized it was very definitely decided that we should not limit state council membership to just those who belonged to the National Council. It was agreed that the National Council itself should be the body to carry on investigations and make reports. It was to be a representative group and the state council was to develop, independently, the work of the state. Representatives from State Councils were to constitute the governing body of the National Council, i.e., the Board of Directors."

In order to clarify certain issues, the question was raised as to whether or not it would be a wise expenditure of money to have copies of the constitution made available to interested persons. A motion for the publication of 1000 copies of the constitution was made, seconded, voted upon, and carried.

A motion was made, seconded, and carried that a word of welcome be sent to the new chapters of Ohio, Illinois, and Maryland. The motion carried.

There followed next a discussion of the meeting place for 1940. After some discussion, a motion was made and seconded that the incoming President and the Secretary be empowered to choose the time and place of the next meeting of the Council. The motion was put to a vote and carried.

A discussion relative to an invitation sent to the National Council of Geography Teachers by the Department of Scientific Investigation of the National Education Association followed. This invitation requested the National Council to have a representative present at a meeting held on December 6 and 7 to discuss certain matters of cooperation in connection with a publication. Professor Whitaker represented the Council at this meeting. After some discussion it was moved that the National Council go on record as approving Mr. Whitaker's action, and further that the National Council appoint Mr. Whitaker to act as representative of the Council in further cooperation with this group. The motion was seconded, and carried.

President Reeder next raised the question, brought up at the meeting the previous night, as to whether the form of organization of the National Council might be made more democratic. After a very lengthy discussion, in which a number of the members participated, a motion was made that the regular evening meeting of the first day of the annual meeting of the Council be devoted to a presentation of committee reports and such other business as usually comes up at the Board meetings, the meeting to be limited to members only, and voting on issues be made by the Directors only. The motion was seconded, put to a vote, and carried.

Earl E. Lackey next reported briefly for the Committee on the Classification of Climates of which Ralph Brown is chairman. Professor Lackey gave the history leading up to the appointment of the committee, and then gave a report on a recent meeting of the committee. It was proposed that the committee have a part on the program next year, and report progress made up to that date. Some discussion then followed as to whether it might not be possible for the committee to make its report at the first evening meeting which is to be scheduled next year as a business meeting. The suggestions were left to the discretion of the President-Elect, Miss Sletten.

There was again brought up the possibility of establishing two kinds of memberships in the National Council. The first, a regular membership to which one is entitled by paying the two dollar dues, and the second to be a sort of honorary membership. After some discussion it was recommended that the Board study the possibility and make recommendations at the next meeting.

The motion was seconded, and carried.

There next followed a discussion of the possibility of sending two students from

the Hyde Park High School to the N.E.A. convention at Milwaukee to demonstrate the project which had been so well given at the Chicago meetings. After some discussion, a motion was made that the National Council pay expenses up to the amount of $12 to send to Milwaukee the two young people who demonstrated the projects. The motion was seconded, voted upon, and carried.

There next followed a lengthy discussion relative to a cooperation of the National Council with the National Council for Social Studies to participate in the N.E.A. meetings to be held in St. Louis in February. A motion was made and carried, that the entire matter be referred to Miss Sletten, President-Elect, with the recommendation that she write to Dr. Wesley expressing our interest and desire to cooperate.

The meeting adjourned at 11:50 P.M.

RESEARCH IN GEOGRAPHIC EDUCATION

GENERAL STATEMENT

The Research Committee of the National Council of Geography Teachers is entrusted to select one or more persons for research on some specific problem in geographic education. The committee will make available varying amounts of money to assist the person or persons selected. The individual must have demonstrated ability in research.

PURPOSES OF THE AWARDS

1. To promote training in geographic research.
2. To increase knowledge of the problems of geographic education and to seek to find solutions of such problems.
3. To encourage research in geographic education in the educational institutions of our country.

APPOINTMENTS

The awarding of grants-in-aid for research in geographic education are made only after careful consideration of the ability and preparation of candidates.

Eligibility:

Citizenship in the United States
Evidence of vigorous maturity
Advanced degree or equivalent training

Amount: The amount of financial assistance given depends on the problem.

Tenure: The period of appointment is for one year but may be renewed if, in the judgment of the committee, a longer period is needed for the completion of the study.

Withdrawal of Aid: The Research Committee reserves the right to withdraw aid for any cause which in its judgment justifies such action.

APPLICATIONS FOR APPOINTMENT*

Applications should be on forms obtainable from the Secretary of the National Council of Geography Teachers and must be submitted in triplicate, on or before October 1, of the year preceding that in which the grant is desired.

The Research Committee requires that each applicant for assistance shall be nominated and responsibly supported by a sponsor of high professional standing.

The applicant should state his problem clearly and outline fully his proposed plan of research. He should indicate two American institutions at which the work can be conducted to good advantage, or where and under what conditions he expects to carry on the research.

*The Research Committee can be aided greatly, in administering the Research Fund of the National Council, by those who will recommend applicants.

In addition, each applicant is required to have two or more statements of recommendations submitted directly to the Research Committee from persons qualified to vouch for the applicant's scholastic attainment and promise in research.

REGULATIONS

Persons receiving such assistance are expected to devote a reasonable amount of time to the research.

Reports and Publications: An individual applying for reappointment should submit with the application a brief report, *in triplicate,* indicating the progress of the research, and outlining his future plans.

Upon completing of his research, or at the expiration of the period of assistance from the National Council, the individual is expected to file a brief statement of the results of his work, and to file subsequently with the Research Committee three reprint copies of such additional reports and papers involving the research problem as may be published.

APPLICATION FORM

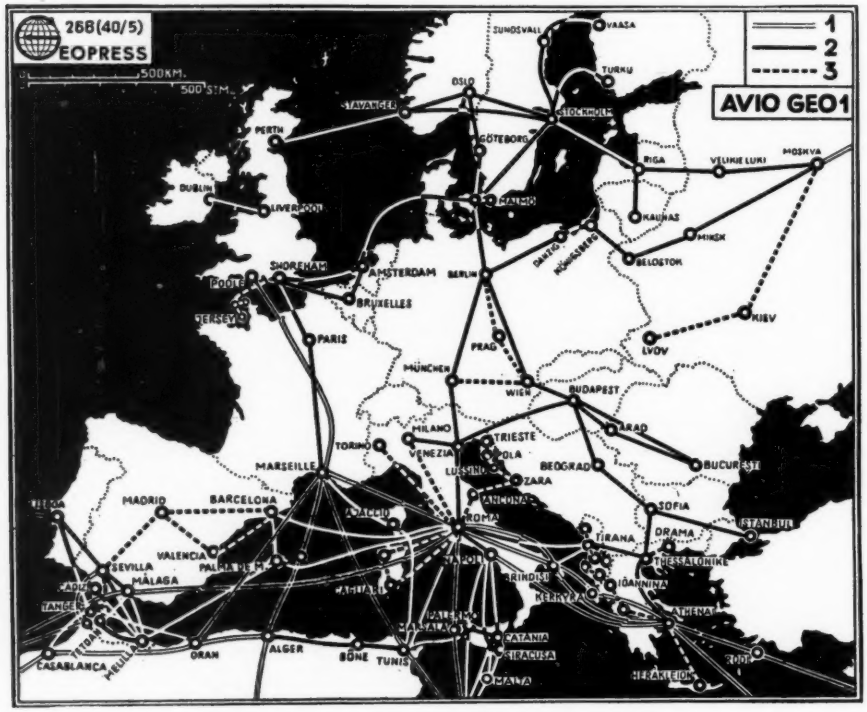
I. Name of applicant
II. Date and place of birth
III. Education
  1. Undergraduate
    a. Where
    b. Major field
    c. Minor fields
    d. Activities
  2. Graduate
    a. Degrees
    b. From what institutions
    c. Major field of interest
    d. Minor fields
    e. Activities
  3. Experience in the educational field
IV. Research to be pursued
  Statement of problem
V. Purpose and reason for interest in problem
VI. Outline of proposed plan of research
VII. Where and under what circumstances do you expect to carry on your research work?

Research Committee: As constituted Dec. 28, 1939

Zoe A. Thralls, University of Pittsburgh. Term to expire 1939.
Robert Brown, State College of Education, Providence, R.I. Term to expire 1940.
Wallace W. Atwood, Clark University, Worcester, Mass. Term to expire 1941.
Edith P. Parker, University of Chicago. Term to expire 1942.
J. Russell Whitaker, George Peabody College for Teachers, Nashville, Tenn. Term to expire 1943.
H. Harrison Russell, Treasurer and member ex officio, State Teachers College, Bloomsburg, Pa.

EDITORIAL NOTES AND NEWS

The wars in Europe have altered greatly the air-routes of that continent. The eminent position of central Europe has been lost, only a few lines still operate. The center of air traffic has moved from central Europe towards the Mediterranean, which has been spared by the war, and Rome today has become the airways center of Europe.



1. Intercontinental airways. 2. Other international airways.
3. Inland lines.

Northern and southern Europe are connected only by the Swedish lines from Stockholm and Oslo to Berlin. From Berlin, an airway exploited by Germany and Italy in common, leads to Rome via Munich and Venice. Besides this, Berlin is linked by German airlines passing by Vienna to the capitals of southeast Europe: Budapest, Bucharest, Belgrade, Sofia, Istanbul and Athens. A German-Soviet line, recently established, connects Berlin with Moscow. Communications between eastern and western Europe avoid Germany at present. They are chiefly operated by the Swedish Air Lines whose planes go from Moscow and the Finnish towns of Turku and Vaasa to Perth in Scotland via Stockholm. Swedish, Danish and Dutch lines link Scandinavia to the Netherlands and to England by the North Sea. The Italian companies predominate in the air traffic of southern Europe; their planes cross the borders of the Mediterranean from Athens in the southeast, to Lisbon at the extreme southwest. The German flag has completely disappeared from the transcontinental airways, while Italy, in this domain also, has become the premier. Rome is now the point of departure for an Italian-South American line in addition to the lines which were already in existence for Italian Africa (via Marsala-

Tripoli to Addis-Ababa) and for Asia (by Brindisi-Athens-Rhodes to Bassorah). The Dutch line from Asia and Australia no longer leaves from Amsterdam, but also from Italy (Naples). The British transcontinental lines for South Africa and the Far East and Australia, go also via Rome. On the other hand, the French line to the Far East, goes via Tunis, the south coast of the Mediterranean; it starts from Marseilles, just as do the other French transcontinental lines, that is to say, the line to Central Africa via Algiers, and the lines to West Africa and South America via Oran. The transatlantic airway from North America, operated by an American company, arrives at Lisbon. From there an Italian line establishes connection with Rome via Seville, Melilla, Palma, and a French line with Marseilles via Tangiers-Oran.

The Smithsonian Institution and the United States Office of Education are sponsoring the publication of a series of weekly articles on historic, scientific, and sociological subjects for lay readers and schools. This periodical, called *The World Is Yours,* is an extension of the Sunday afternoon Smithsonian Institution radio program, produced by the United States Office of Education, released on the Red Network of the National Broadcasting Company. The magazine will feature articles by curators of the Institution, significant portions from the scripts of the broadcast, notes on scientific developments from the Smithsonian Institution, reading lists, charts, diagrams, and illustrations. Columbia University Press is printing and distributing the periodical on a non-profit basis at a nominal cost.

Reports compiled by J. B. Kincir of the United States Weather Bureau indicate that in 1939 normal or above normal precipitation was general east of the Mississippi River except in the northeast. West of the river, all states except Arkansas had below-normal precipitation. Alabama with 59.33 inches had the most precipitation of the year, while Nevada with 8.45 inches had the least, tho the latter was only slightly below normal. Other records in inches were: North Dakota, 14.15; South Dakota, 15.71; Nebraska, 16.28; Oklahoma, 20.08; Colorado, 10.68; Wyoming, 9.48; and California, 15.85. Temperatures were generally above normal, only February being classed as abnormally low for the country as a whole. January and December were abnormally warm everywhere.

Oil discoveries spell gold anywhere but, in addition, spell magic in some parts of the world hitherto untouched by the adjuncts of modern life. Thus, Bahrein, one of a group of desert islands in the Persian Gulf, inhabited by a few oases dwellers cultivating date palms and frequented mainly by Arab pearl fishers, becomes the site of a modern city with air-conditioned buildings, golf links and a cricket field, surrounding an oil refinery and forest of oil wells. One of the other nearby islands is an airport for British planes to the Orient. A bridge to link the two islands is now being built, and archeologists are excavating mounds that are proving to be prehistoric tombs, perhaps of the earliest of all Phoenician traders.

Captioned photographs in a recent issue of *Ymer* indicated that increased activity is characterizing the geysers of southeastern Iceland.

According to the Minerals Yearbook, 1938, there is an increasing demand for helium for medical use, especially in an oxygen mixture for sufferers from asthma, diphtheria, and other windpipe constrictions. The flow of gases thru narrow openings requires a pressure for a certain velocity of gas that is inversely proportional to the square root of the weight of the gas. To breathe air requires approximately twice as much effort as that to breathe a helium-oxygen mixture. The late helium act provides that helium shall be sold for medical uses at prices that will encourage wider general usage.

GEOGRAPHICAL PUBICATIONS

Otis P. Starkey. **The Economic Geography of Barbados.** 211 pp., 22 maps and drawings. Columbia University Press, New York City. 1939. $3.00

"The Economic Geography of Barbados," primarily a study of Barbados' Sugar Industry, is a commendable addition to the all too short list of books on individual islands of the Caribbean. "What has been the effect of the variability of environmental conditions on the development of . . . Barbados" is the central theme set forth by the author. It is also stated that "care has been taken . . . to avoid the unrealistic consideration of the environmental variable apart from the whole picture." Another indication that the author is in sympathy with the entirety or integration of a region is revealed in the sentence—"the prosperity of Barbados has been influenced by (combination of environmental factors) rather than by any one part acting separately." The content, 211 pages, is organized into nine chapters; Chapters I and II, an introduction and a systematic presentation of the Barbadian environment; Chapters III, IV, V, and VI, an economic history of Barbados with major emphasis on the sugar industry; Chapters VII and VIII, the present Barbadian economy; and Chapter IX, conclusions. Graphs, maps, and a representative bibliography add clarity and usefulness to the manuscript. Interpretative and thought provoking statements place the book beyond a mere compilation of facts. Teachers of geography, history, economics and social studies in general will welcome Mr. Starkey's contribution as an important reference on the economic geography of Barbados.

F. A. CARLSON

Ohio State University,
Columbus, Ohio

Carl Sauer. **Man in Nature. America Before the Days of the White Man.** 273 pages, approximately 250 illustrative drawings, nine double page maps.

As "A First Book in Geography" (grade level not stated) this book differs from others intended for similar use in many ways. Major emphasis is placed on natural environmental conditions. The American Indian is used as a lure to seduce the young student into learning readiness and continued interest. Major concern with the "what" and the "where" doubtless reflect the author's statements that: "Geography is taught so that there may be orderly knowledge of the diversity of the world. It is the one social science concerned in principle with the *where* of human beings and their work. . . ."

"This knowledge is developed in the first place by learning more and more place facts."

Much of the verbal material is readable altho some of the sentences are relatively long and some are difficult to understand.

The author's discipline doubtless accounts for the absence of photographs since pictures of Indian landscapes are relatively rare. It is not so easy to understand why there are only black and white maps, why the large maps are all at the back of the book, why there are several "picture" maps, why, since latitude lines are given, they are not numbered, and why in "A First Book in Geography" footnote reference must be made to Köppen's classification of climates.

Perhaps Sauer's "First Book in Geography" may affect subsequent publication in this field as significantly as some of his other works have affected American geographic thought at other levels. Perhaps other American geographers will cultivate the ground Sauer has furrowed. If so their results may be valuable.

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